4K91-24

SOUTH ALASKA PENINSULA POST JUNE SALMON FISHERY, 1991 REPORT TO THE ALASKA BOARD OF FISHERIES

By

James N. McCullough

and

Mark E. Stopha

Regional Information Report[1] No. 4K91-24

Alaska Department of Fish and Game
Division of Commercial Fisheries
211 Mission Road
Kodiak, Alaska

November 1991

[1]The Regional Information Report Series was established in 1987 to provide an informational access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

In 1991, the South Peninsula commercial salmon fisheries occurred from July 6 to September 27.

In 1991, total of 11,667,381 salmon were harvested in post June South Peninsula fisheries. The catch was comprised of 3,270 chinook, 543,688 sockeye, 320,336 coho, 9,995,836 pink, and 804,251 chum salmon. The catch was 60% above the 1982-91 average of 7,281,499 salmon and more that 2.5 times larger than the 1990 catch of 4,412,921 salmon due to large pink salmon returns. The Southeastern District accounted for 34%, the South Central District 30%, the Southwestern District 25%, and the Unimak District 11% of the total post June harvest.

KEY WORDS: Alaska Peninsula, salmon, catch

DESCRIPTION OF AREA

The South Peninsula consists of Pacific Ocean coastal waters extending west of Kupreanof Point to Scotch Cap on Unimak Island (Figure 1). The South Peninsula is divided into four districts: (1) the Southeastern District, consisting of all waters extending west from Kupreanof Point to McGinty Point; (2) the South Central District, consisting of all waters extending west from McGinty Point to Arch Point; (3) the Southwestern District, consisting of all waters extending west from Arch Point to Cape Pankof Light; and (4) the Unimak District, consisting of all waters extending west from Pankof Light to Scotch Cap (Figures 2-6). The four districts contain 21 sections or statistical areas (Figures 7-8).

METHODS

Commercial catch data were compiled by the Division of Commercial Fisheries of the Alaska Department of Fish and Game (ADF&G). These data were based on computer tabulations originating from individual sale receipts (fish tickets) given to fishermen at the time of delivery. Fish tickets and the computer generated summaries were edited by ADF&G Alaska Peninsula staff for errors and omissions. Because extensive fish ticket editing is required to finalize the data for any given year, later reports may contain minor differences in the catch information listed in this report. All 1991 commercial catch data should be considered preliminary; there has not been sufficient time for the extensive fish ticket editing that is required to finalize the data.

DISCUSSION

Historical Management

Historically, post June South Peninsula fisheries were open five days per week (6:00 A.M. Monday through 6:00 P.M. Friday) in the published regulations. The Bureau of Fisheries (the federal regulatory agency prior to statehood) and management by the Alaska Department of Fish and Game before 1976, had total season closures for the South Peninsula on August 10. These closures were made to provide adequate escapement and to maintain a quality salmon product. During the mid-1970's, when local stocks were experiencing weak runs, prompted commercial salmon fishing periods to be initiated through the use of emergency orders.

Emergency orders since about 1976 have been justified on the strength and weakness of local stocks, with the realization that the harvest of salmon migrating to other management areas had occurred historically and would continue to occur. Recent emergency orders reflect local salmon run strength, by allowing fishing to occur into late August during years of strong pink salmon runs, while closing most or all fishing periods after August 10 during years of low pink

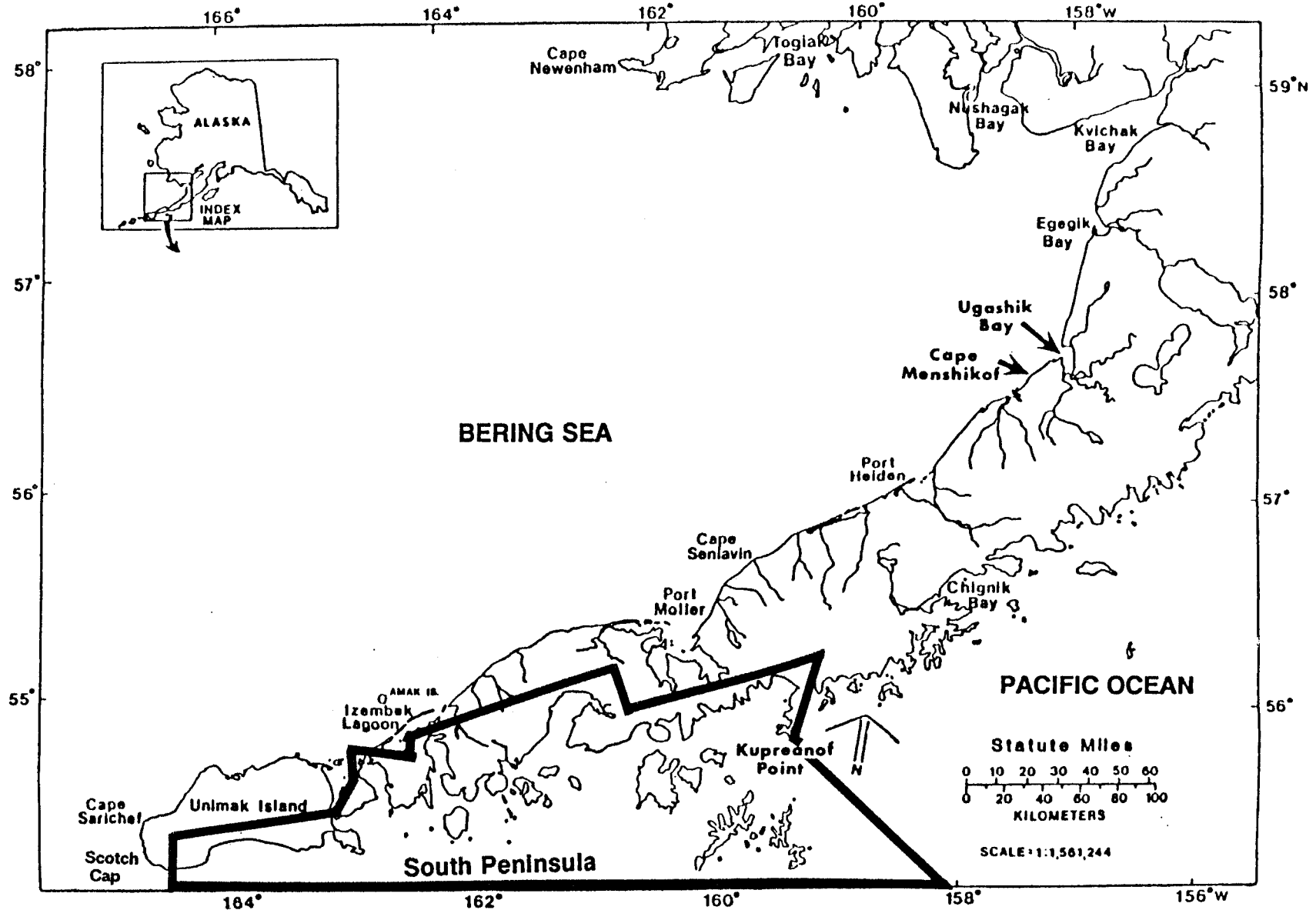


Figure 1. Map of the Alaska Peninsula Management Area, the study area on the Pacific Ocean portion of the map is from Kupreanof Point to Scotch Cap on Unimak Island.

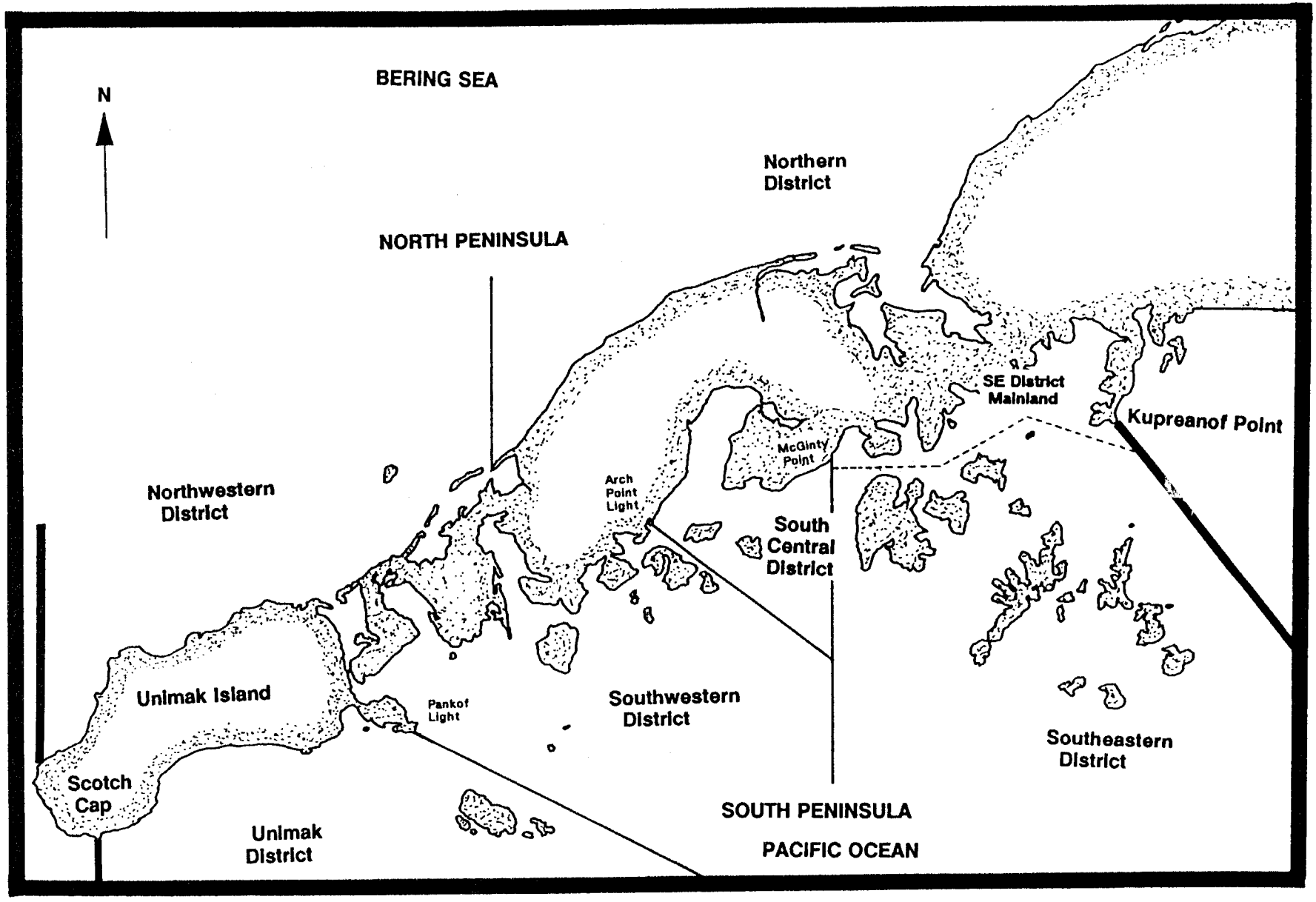


Figure 2. Map of the Alaska Peninsula Area from Kupreanof Point to Scotch Cap with the salmon fishing districts shown.

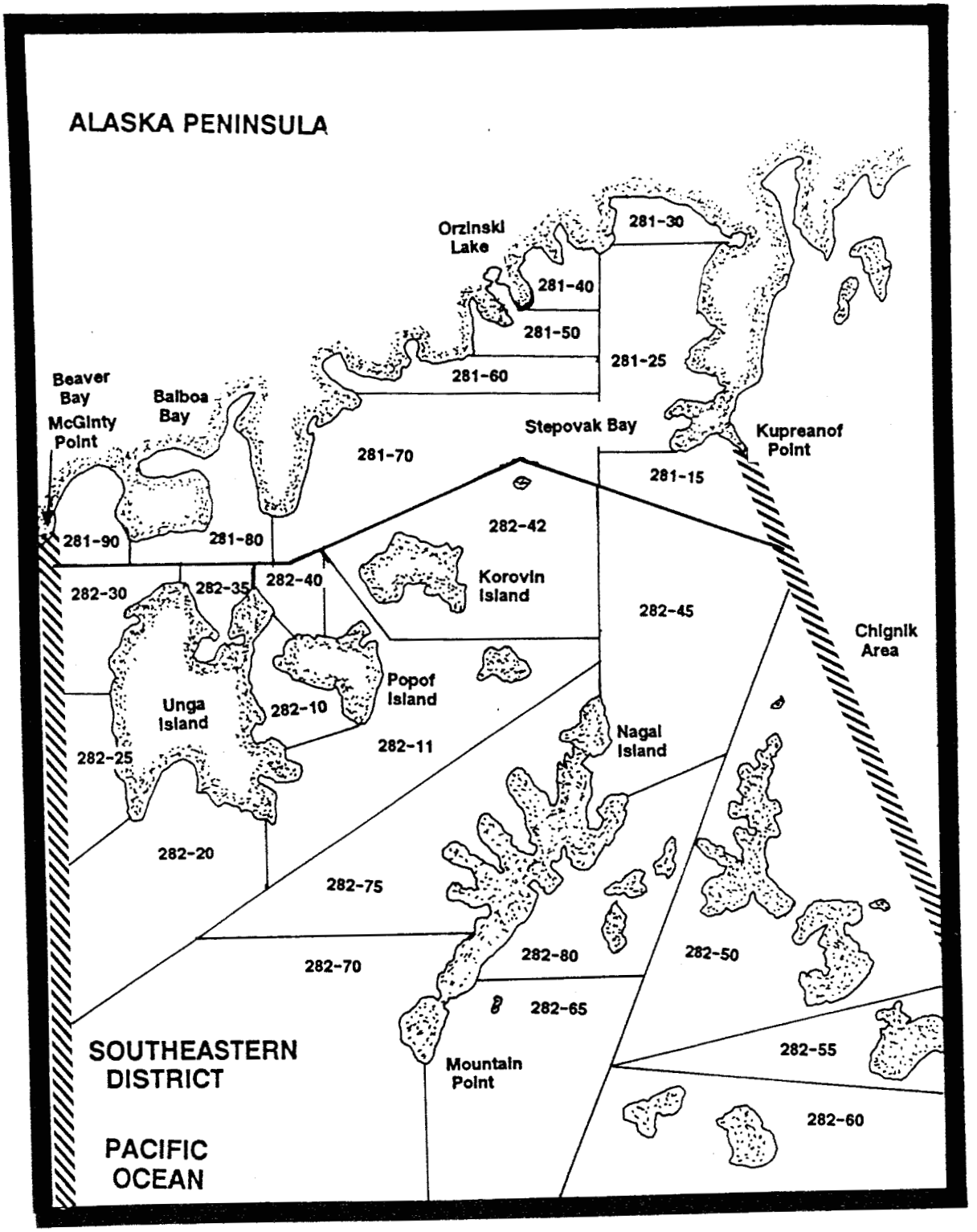


Figure 3. Map of the Alaska Peninsula Area from Kupreanof Point to McGinty Point (Southeastern District) with the statistical salmon fishing areas shown.

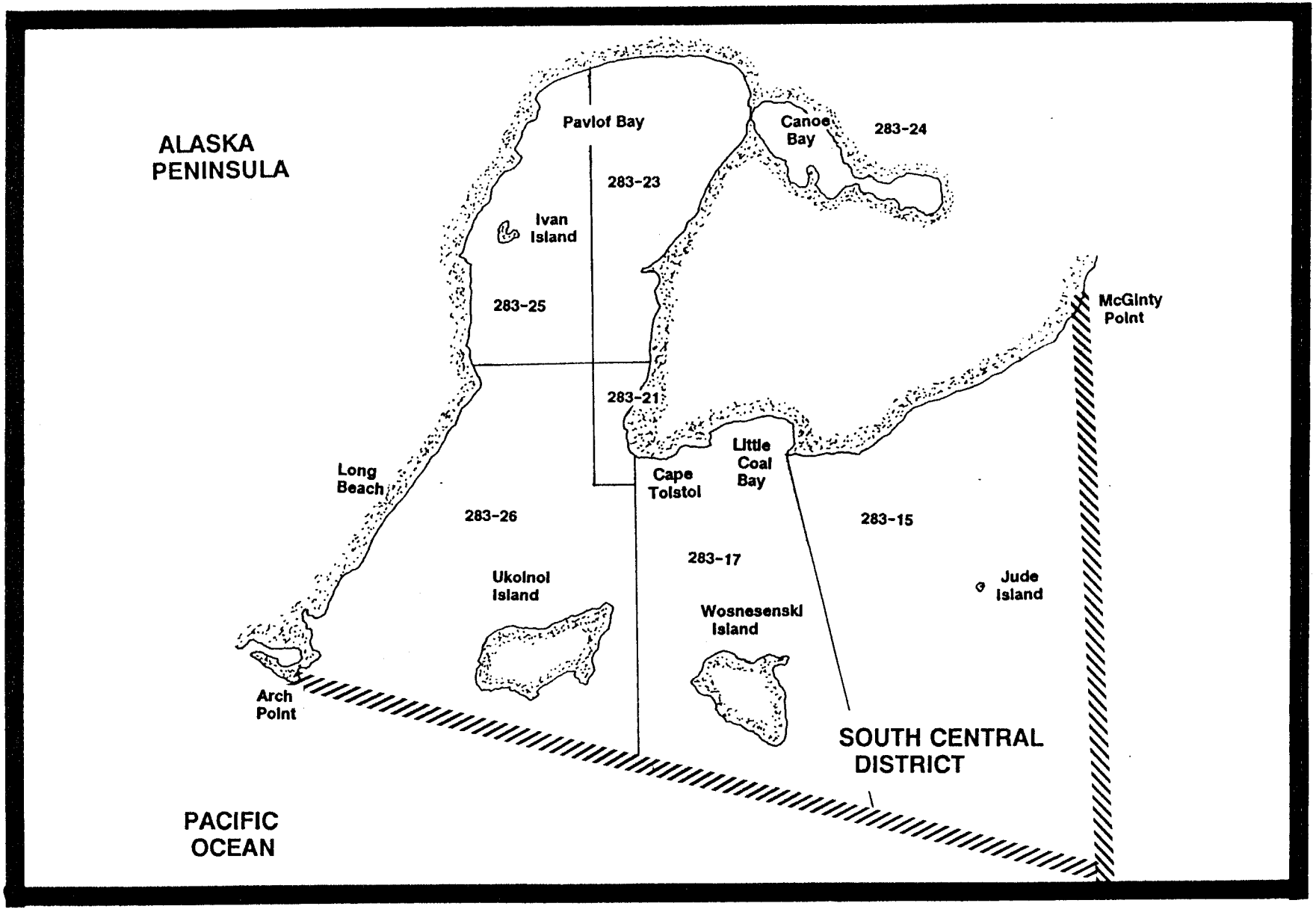


Figure 4. Map of the Alaska Peninsula Area from McGinty Point to Arch Point (South Central District) with the statistical salmon fishing areas shown.

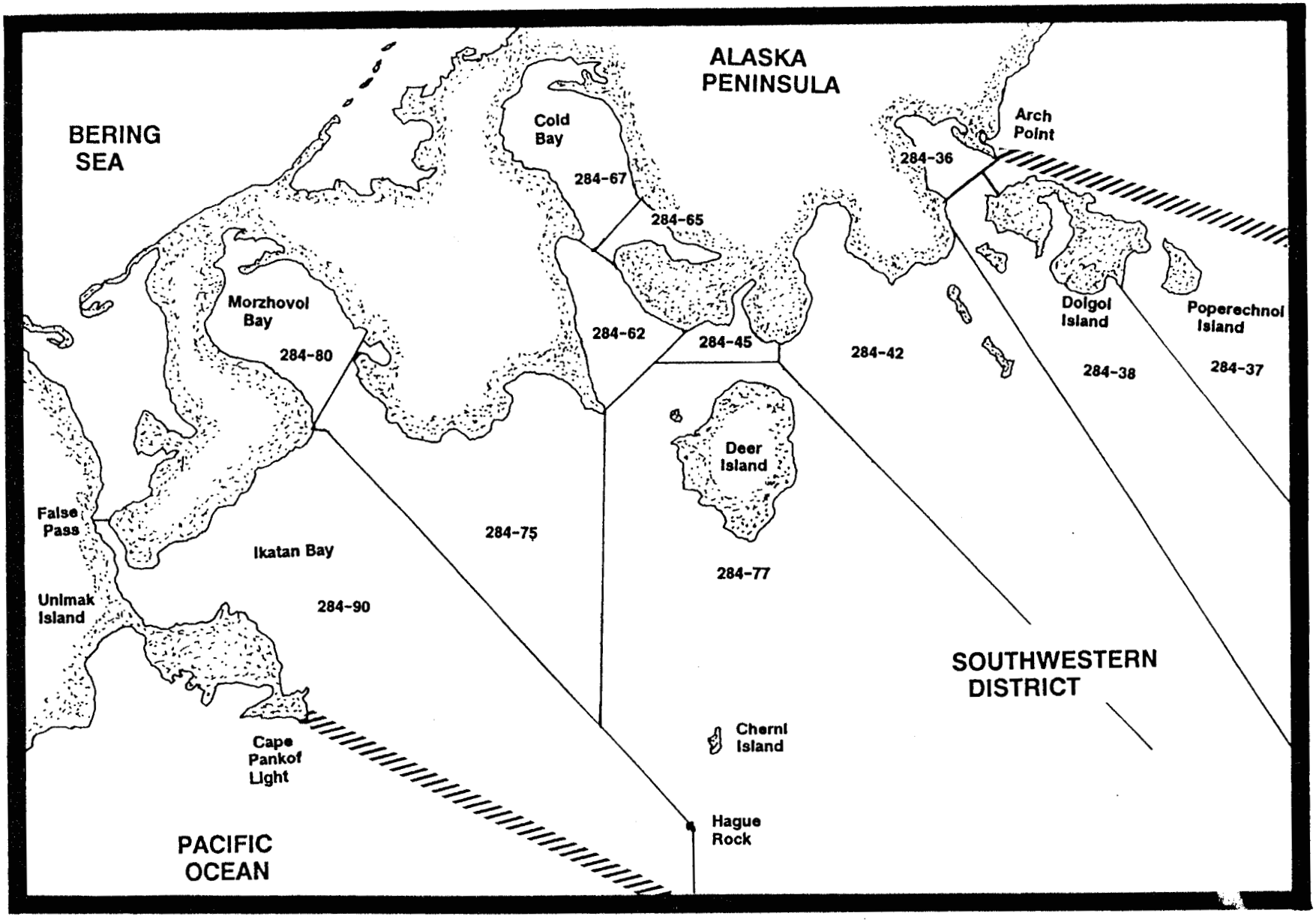


Figure 5. Map of the Alaska Peninsula Area from Arch Point to Unimak Island (Southwestern District) with the statistical salmon fishing areas shown.

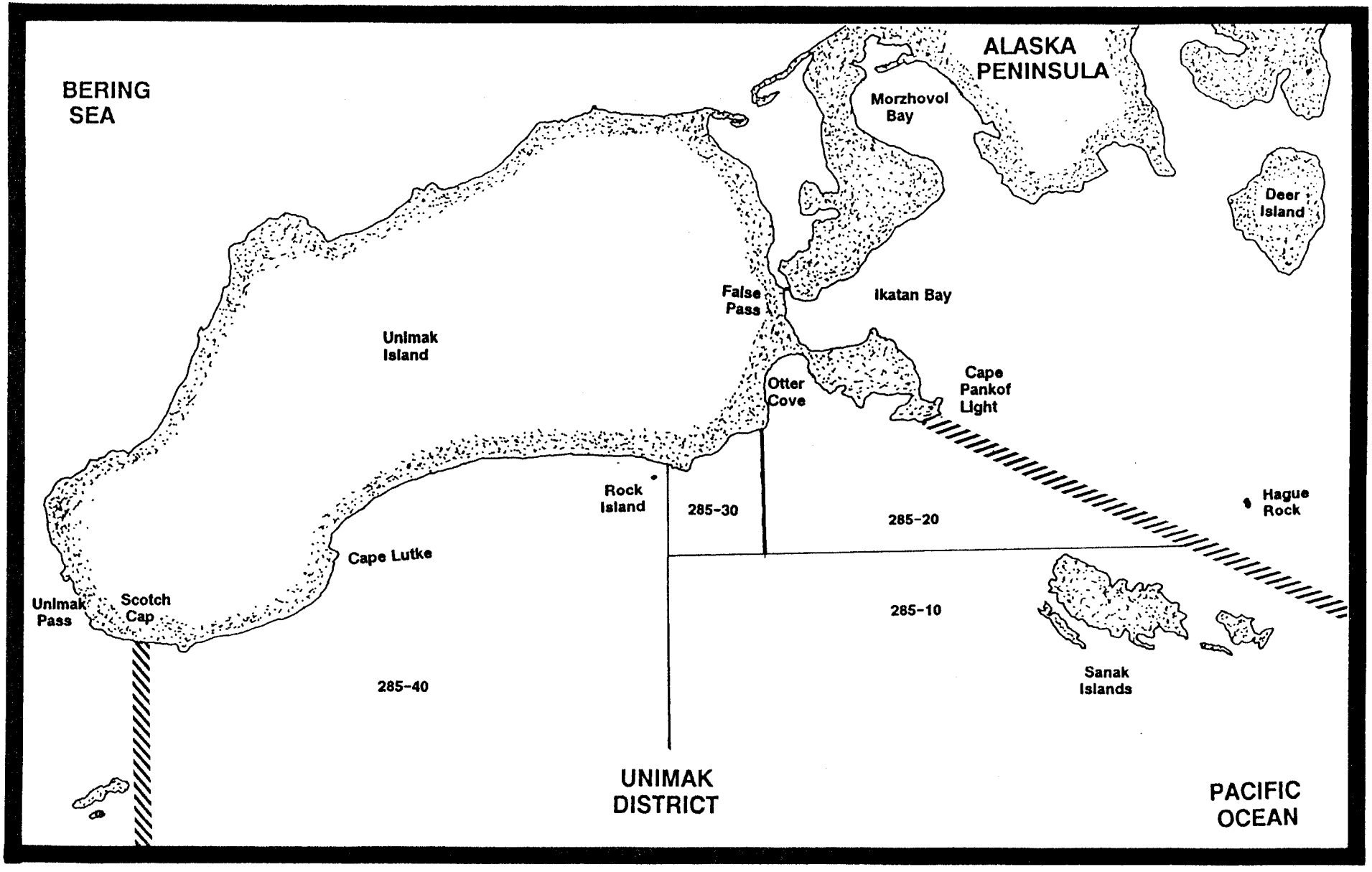


Figure 6. Map of the Alaska Peninsula Area from Hague Rock to Unimak Pass (Unimak District) with the statistical salmon fishing areas shown.

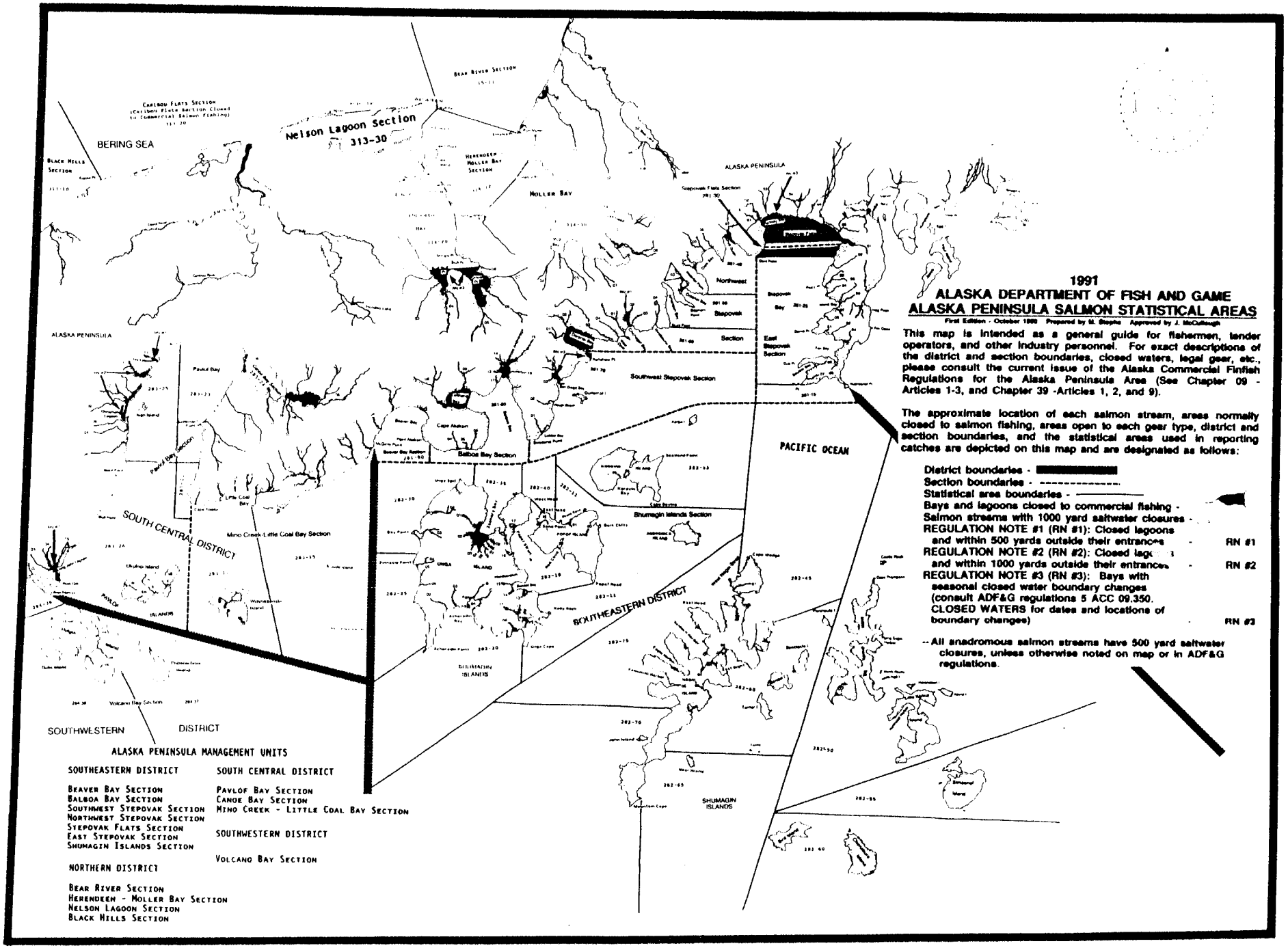


Figure 7. Map of the Alaska Peninsula Area from Kupreanof Point to Arch Point with the statistical

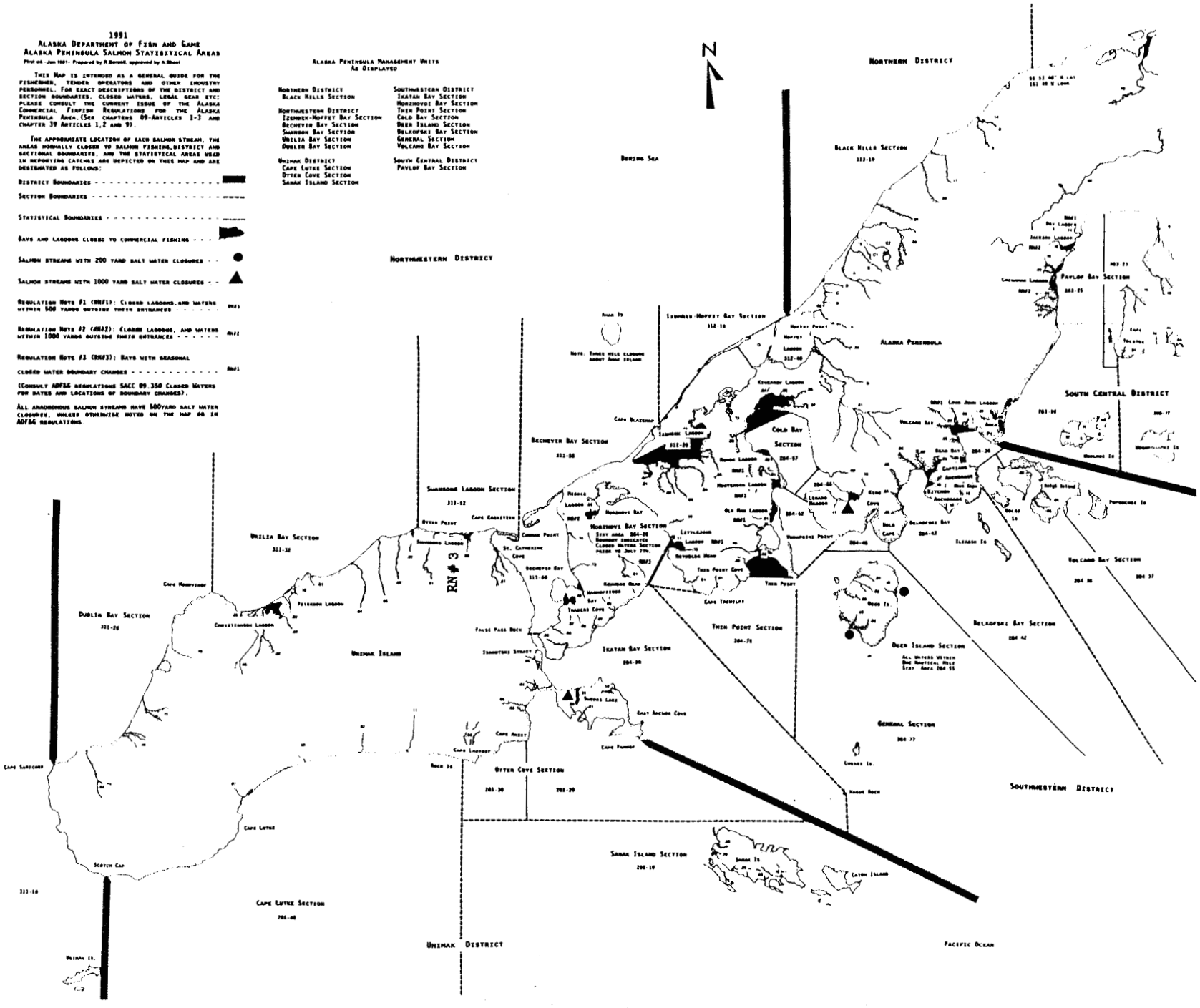


Figure 8. Map of the Alaska Peninsula Area from Cape Tolstoi to Scotch Cap with the statistical salmon fishing areas shown.

salmon abundance. Recent emergency orders also allow fishing during September which is based on local coho and late chum salmon runs.

Generalized Management Strategy

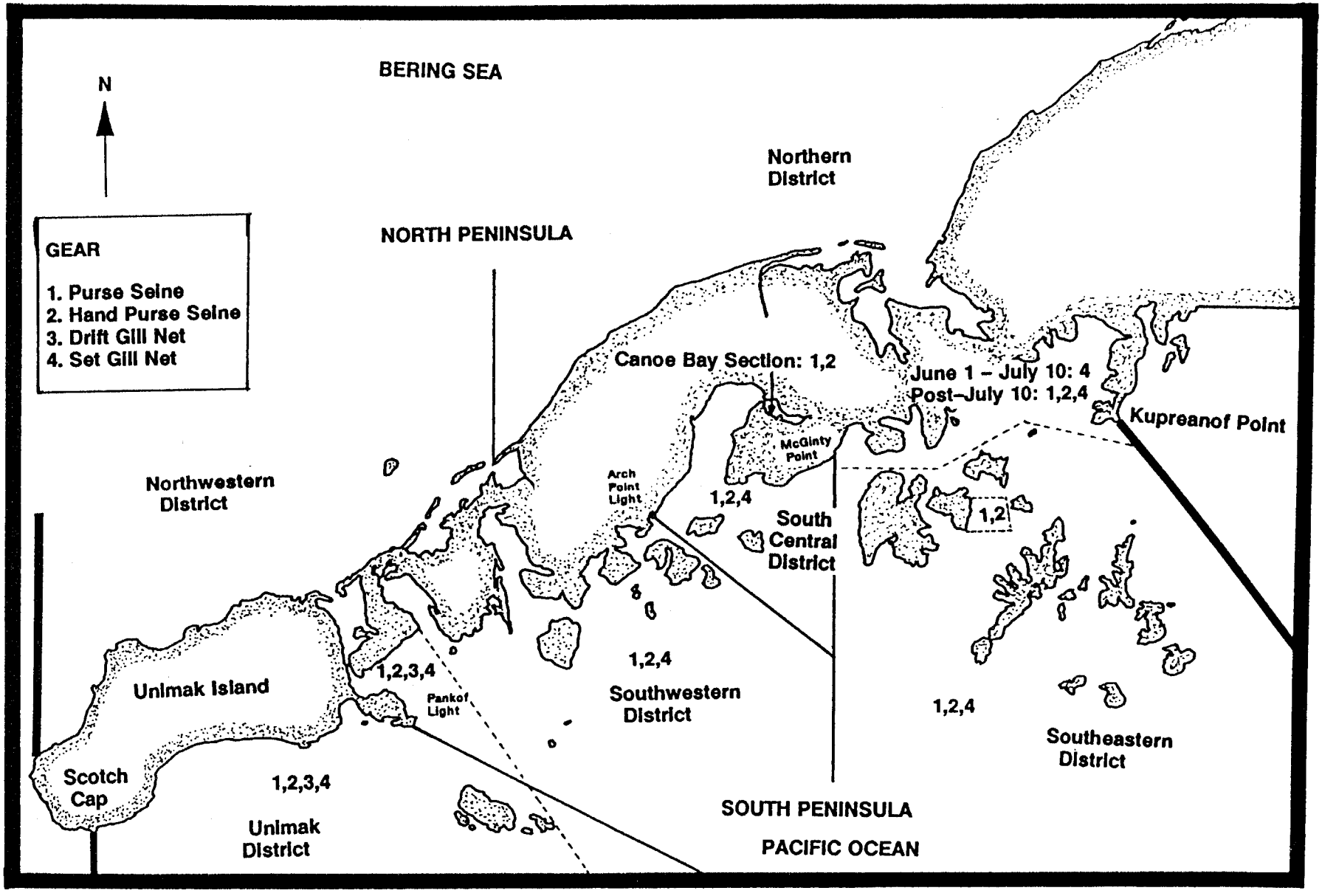
Five species of Pacific salmon are commercially harvested in post June South Peninsula fisheries: chinook, sockeye, pink, chum, and coho salmon. Three gear types are used: purse seine, drift gill net, and set gill net (Figure 9). With the exception of the Southeastern District Mainland area, purse seine gear is legal throughout the South Peninsula. Drift gill net gear is legal only in the Ikatan Bay Section of the Southwestern District and the Unimak District. Set gill net gear is legal throughout the South Peninsula, except for the east coast of Popof Island and the Canoe Bay Section.

When limited entry permits were issued to South Peninsula commercial salmon fishermen, several fishermen qualified for two or three different gear type permits (purse seine, drift gill net, and set gill net). Most fishermen originally given multiple permits have sold the extra permits and usually retained a single permit of the gear type they prefer to commercially fish. The trend of selling multiple permits has slowed and the recent increase in effort for most fisheries has stabilized. Currently most fishermen own a single permit which is used throughout the season.

Generally, that portion of the South Peninsula located east of Rock Island opens to commercial salmon fishing about July 6 (Figure 10). The major exceptions to South Peninsula general openings are: (1) the Southeastern District Mainland fishery, which is managed through July 25 on an allocation of Chignik bound sockeye salmon (Southeastern District Management Plan 5 AAC 09.360); and (2) that portion of the Cold Bay Section north of 55°10′ N.lat. (Russel Creek Hatchery closed waters area, which is used by the hatchery to collect brood stock).

Fishing periods from July 6 to about July 18 are based on chum salmon run strength. Fishing periods from about July 18 through about August 20 are based on the strength of pink salmon runs, although chum salmon runs continue to be a factor when establishing fishing periods. Usually, the South Peninsula is closed from about August 20 through August 31 to meet late run chum and pink salmon escapements and to achieve early run coho salmon escapements. Fall fishing periods (post September 1) are primarily based on coho salmon run strength, although late chum and pink salmon runs are considered when determining the fishing periods. All post June emergency orders have been justified on local stock run strength, with the realization that the harvest of salmon migrating to other management areas occurs, and at times in specific locations the harvest of migratory stocks may be larger than the harvest of local pink and chum salmon. There are about 185 individual South Peninsula streams that produce sockeye, pink, chum, and coho salmon. Many inseason adjustments, often on a stream by stream basis, are required to harvest salmon in excess to escapement requirements or to extend closed waters where additional escapement is required.

Salmon run strength, weather conditions, management plan allocations, and opportunities for other commercial species change often; therefore, fishing effort in any area can change weekly or daily as early chum and pink salmon runs are replaced by late salmon runs, and when commercial fishing periods occur for



Set Gill Net gear may be used throughout the South Peninsula during periods when the seine fishery is closed by emergency order due to the presence of immature salmon.

Figure 9. Map of the Alaska Peninsula Area from Kupreanof Point to Scotch Cap with the allowable gear types shown.

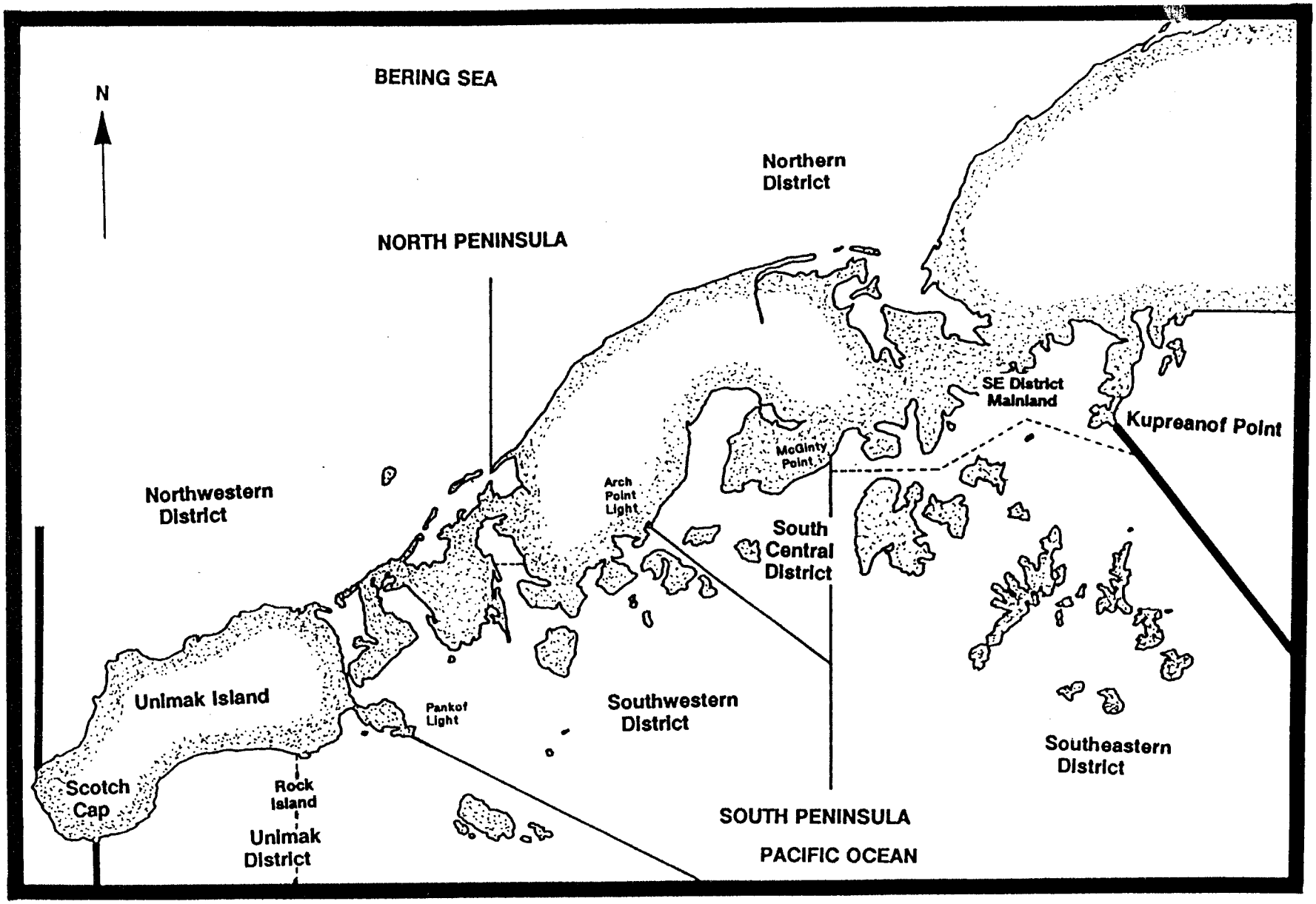


Figure 10. Map of the Alaska Peninsula Area from Kupreanof Point to Scotch Cap with the general post June fishing area (Rock Island-Kupreanof Point) and the Southeastern District Mainland area shown.

herring and halibut. Fishing effort is usually concentrated in the Shumagin Islands Section (except when closed to purse seine gear due to the presence of immature salmon and during fishing periods in the Southeastern District Mainland area), Pavlof Bay, the King Cove area, and the Pankof Light area. Purse seine gear is fished throughout the South Peninsula but is seldom used west of Thin Point. Purse seine gear is concentrated in the Southeastern District, Pavlof Bay, and near King Cove. Set gill net gear is concentrated in the Southeastern District, King Cove, Thin Point, and False Pass areas. Drift gill net gear is concentrated near Cape Pankof.

All South Peninsula commercial salmon fishing periods are regulated by emergency order to achieve allocation guidelines set by the Board of Fisheries and to address escapement objectives. A management plan (Shaul et al. 1991a) and other directives from the board, set policies by which South Peninsula fisheries operate. Because of the increasing complexity of South Peninsula commercial salmon fisheries, management of the South Peninsula was restructured in 1990. An Area Management Biologist position responsible for managing the Southeastern District was created in Sand Point. The Area Management Biologist in Cold Bay was made responsible for managing salmon fisheries in the remainder of the South Peninsula.

In common with practically every salmon fishery in the state, fishermen at any location in the South Peninsula will catch local South Peninsula salmon as well as migratory salmon. In post June fisheries, the ratio of local to migratory salmon has been estimated for only one species (sockeye salmon) in the Southeastern District Mainland fishery. The ratio of local to migratory salmon is likely different for each species, gear type, and many fishing sites separated by only short distances.

South Peninsula Post June Harvest

Chinook Salmon

Chinook salmon are of minor importance in South Peninsula fisheries. A total of 3,270 chinook salmon were harvested in the South Peninsula in 1991. The catch was 33% below the 1982-91 average of 4,905 salmon and 47% below the 1990 catch of 6,164 salmon (Table 1). In 1991, the Shumagin Islands Section accounted for 1,396 chinook salmon (43% of the total harvest). In the Southeastern District, the peak catch occurred during July 19-25. During the past 10 years the post June South Peninsula peak catch ranged from early to late July. There are no documented chinook spawning streams on the South Peninsula.

Sockeye Salmon

The South Peninsula has numerous small sockeye salmon stocks. The largest South Peninsula sockeye stocks are at Orzinski Lake, Thin Point, and Middle Lagoon (Morzhovoi Bay).

In 1991, a total of 543,688 sockeye salmon were harvested in the South Peninsula (Table 1). The catch was 7% below the 1982-91 average of 581,840 salmon and 48% below the 1990 catch of 1,039,265 salmon. The Southeastern District provided

Table 1. South Peninsula post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	657	35,392	59,640	185,564	7,976	289,229
1973	125	32,331	35,783	70,335	6,397	144,971
1974	463	78,761	97,530	48,332	9,307	234,393
1975	0	3,449	55,395	29,928	66	88,838
1976	5	13,693	2,342,027	118,659	213	2,474,597
1977	35	60,669	1,443,245	126,762	2,108	1,632,819
1978	220	70,015	5,500,069	423,056	60,771	6,054,131
1979	1,020	259,102	6,396,327	370,973	356,400	7,383,822
1980	1,489	270,071	6,255,096	817,049	273,294	7,616,999
1981	4,403	303,942	4,580,142	1,168,353	161,897	6,218,737
1982	2,539	171,438	5,009,333	1,167,186	254,363	6,604,859
1983	12,810	521,405	2,771,640	915,740	127,157	4,348,752
1984	4,790	470,918	10,663,896	1,296,231	310,789	12,746,624
1985	724	294,782	4,323,885	912,580	170,046	5,702,017
1986	3,586	687,525	3,739,423	1,394,332	235,852	6,060,718
1987	3,935	463,090	1,191,512	929,782	224,740	2,813,059
1988	7,011	716,949	6,864,600	1,381,796	505,278	9,475,634
1989	4,224	909,335	7,089,895	538,177	441,397	8,983,028
1990	6,164	1,039,265	2,346,043	715,940	305,509	4,412,921
1991	3,270	543,688	9,995,836	804,251	320,336	11,667,381
10 yr avg	4,905	581,840	5,399,606	1,005,602	289,547	7,281,499
20 yr avg	2,874	347,291	4,038,066	670,751	188,695	5,247,676
odd yr avg			3,788,366			
even yr avg			4,287,766			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

399,363 sockeye salmon (73% of the post June sockeye salmon harvest; Table 2). The Shumagin Island Section provided 221,091 salmon (41% of the total post June sockeye salmon harvest; Table 3). Table 4 lists the Shumagin Islands Section sockeye salmon harvest by gear type. Set gill net gear is harvesting an increasing proportion of the sockeye salmon (Table 4, Figure 11). The Southeastern District Salmon Management Plan (5 AAC 09.360; ADF&G 1990) effects sockeye salmon catches in the mainland portion of the Southeastern District through July 25 (Figure 12). In 1991, while the management plan was in effect, the post June harvest of sockeye salmon in the Southeastern District Mainland area was 104,814 salmon (19% of the total post June sockeye salmon harvest). After July 25, an additional 82,458 sockeye salmon were harvested (Table 5).

In 1991, the South Central and Southwestern Districts provided 139,265 sockeye salmon (26% of the total post June sockeye salmon harvest; Tables 6-7). Most of the sockeye salmon were harvested in the Cape Tolstoi and Long Beach area of the South Central District and the Volcano Bay and Ikatan Bay Sections of the Southwestern District. Most of the sockeye salmon in these districts are harvested using purse seine gear, except in the Ikatan Bay Section of the Southwestern District where drift gill net gear harvests most of the sockeye salmon.

The 1991, Unimak District catch of sockeye salmon was 5,060 salmon, 69% below the 1982-91 average of 16,287 salmon and 90% below the 1990 catch of 50,032 salmon (Table 8). Most of the sockeye salmon in the Unimak District are harvested using drift gill net gear.

Many of the sockeye salmon harvested in South Peninsula waters are undoubtedly bound for other areas, although South and North Peninsula streams do contribute to the harvest. Peak catch for the South Peninsula occurred during July 5-11 (141,595 salmon). During the past 10 years the peak catch ranged between early to late July and averaged mid July.

Coho Salmon

Coho salmon harvested in July and August are caught during fisheries that are managed for local pink and chum salmon runs. Coho salmon harvested after August 31 are taken during directed coho salmon fisheries. It is generally accepted that most of the coho salmon harvested in South Peninsula waters in July through mid August are bound for other areas, although South and North Peninsula streams are believed to contribute to the harvest.

Historically, coho catches have demonstrated long periods of differential abundance. From 1923-46, catches stayed at a high level, ranging from 73,900 in 1937 to 284,600 in 1936 and averaging about 148,000 annually (Shaul et al. 1991b). From 1947-58, the average catch decreased to 50,400 coho salmon. The 1959-77 average catch was only 11,800 salmon. Catches increased to an average of 268,300 from 1978-91. The largest post June catch occurred in 1988 (505,278 coho salmon). Through 1950, catches from the Aleutian Islands Management Area were combined with South Peninsula catches, but the Aleutian contribution is believed to be insignificant. The largest documented Aleutian Islands Management Area coho harvest occurred in 1918 (4,400 salmon), currently the annual catch is usually less than 200 salmon.

Table 2. Southeastern District post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	644	26,548	45,061	118,254	7,893	198,400
1973	124	30,401	27,782	41,463	6,263	106,033
1974	456	65,461	81,811	43,821	8,212	199,761
1975	0	3,156	3,020	770	63	7,009
1976	2	7,900	578,581	32,657	201	619,341
1977	28	39,099	170,648	21,664	2,075	233,514
1978	209	63,391	1,906,403	232,274	47,206	2,249,483
1979	1,014	243,649	3,237,187	171,934	338,221	3,992,005
1980	1,460	229,739	1,949,427	462,731	253,971	2,897,328
1981	4,306	263,430	2,275,113	720,133	140,363	3,403,345
1982	2,350	131,985	2,543,146	673,943	223,202	3,574,626
1983	7,923	432,808	1,079,426	467,182	110,800	2,098,139
1984	3,860	318,228	3,084,662	513,050	240,818	4,160,618
1985	588	187,449	2,645,117	370,855	128,738	3,332,747
1986	3,427	523,310	1,988,146	722,800	206,461	3,444,144
1987	3,676	355,837	921,294	551,932	182,036	2,014,775
1988	6,304	575,291	4,577,143	674,140	391,739	6,224,617
1989	3,637	693,516	5,028,554	370,654	323,081	6,419,442
1990	5,738	700,713	1,352,162	500,141	237,693	2,796,447
1991	2,702	399,363	4,278,511	410,471	200,008	5,291,055
10 yr avg	4,021	431,850	2,749,816	525,517	224,458	3,935,661
20 yr avg	2,422	264,564	1,888,660	355,043	152,452	2,663,141
odd yr avg			1,966,665			
even yr avg			1,810,654			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

Table 3. Shumagin Islands Section post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	612	17,114	33,721	95,734	7,673	154,854
1973	115	13,297	17,294	31,619	5,918	68,243
1974	441	26,174	33,934	28,535	8,025	97,109
1975	0	0	0	0	0	0
1976	0	3	303,422	7,968	3	311,396
1977	0	97	0	38	74	209
1978	189	51,261	1,213,961	164,930	40,433	1,470,774
1979	910	141,692	2,067,526	91,347	313,463	2,614,938
1980	1,380	138,445	1,545,827	262,468	233,467	2,181,587
1981	4,038	118,139	1,364,370	309,726	126,955	1,923,228
1982	1,967	67,227	1,636,024	293,176	206,838	2,205,232
1983	6,547	108,365	900,726	220,824	92,403	1,328,865
1984	3,222	96,149	1,786,737	259,497	211,648	2,357,253
1985	511	107,792	1,627,627	205,649	113,193	2,054,772
1986	3,149	341,966	1,497,905	557,407	201,518	2,601,945
1987	3,388	248,934	542,383	310,540	157,936	1,263,181
1988	5,955	416,917	3,396,332	415,308	351,118	4,585,630
1989	2,446	416,425	2,023,468	238,627	248,760	2,929,726
1990	4,916	423,253	1,102,353	344,096	182,128	2,056,746
1991	1,396	212,091	2,140,838	211,667	142,846	2,708,838
10 yr avg	3,350	243,912	1,665,439	305,679	190,839	2,409,219
20 yr avg	2,059	147,267	1,161,722	202,458	132,220	1,645,726
odd yr avg			1,068,423			
even yr avg			1,255,022			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

Table 4. Percent of the total, sockeye, and coho salmon post June commercial salmon catch by gear type for the Shumagin Islands Section, 1972-91.

Year	--All Species-- Seine	Set	-----Coho---- Seine	Set	----Sockeye---- Seine	Set
1972	97.4	2.6	99.7	0.3	94.9	5.1
1973	89.5	10.5	98.2	1.8	70.3	29.7
1974	95.5	4.5	99.8	0.2	91.1	8.9
1975	0.0	0.0	0.0	0.0	0.0	0.0
1976	100.0	0.0	100.0	0.0	100.0	0.0
1977	0.0	100.0	0.0	100.0	0.0	100.0
1978	97.8	2.2	98.5	1.5	90.7	9.3
1979	98.0	2.0	99.0	1.0	91.9	8.1
1980	97.8	2.2	99.4	0.6	88.6	11.4
1981	96.9	3.1	99.1	0.9	88.6	11.4
1982	98.2	1.8	98.5	1.5	91.1	8.9
1983	97.8	2.2	97.6	2.4	89.1	10.9
1984	96.0	4.0	98.1	1.9	78.4	21.6
1985	95.5	4.5	97.0	3.0	85.9	14.1
1986	95.5	4.5	98.5	1.5	82.5	17.5
1987	90.8	9.2	96.3	3.7	73.7	26.3
1988	93.4	6.6	97.0	3.0	78.4	21.6
1989	87.6	12.4	91.7	8.3	60.5	39.5
1990	88.1	11.9	92.5	7.5	61.5	38.5
1991	88.5	11.5	88.1	11.9	41.2	58.8
10 yr avg	93.1	6.9	95.5	4.5	74.2	25.8

Note: The 10 year average is from 1982 - 1991.

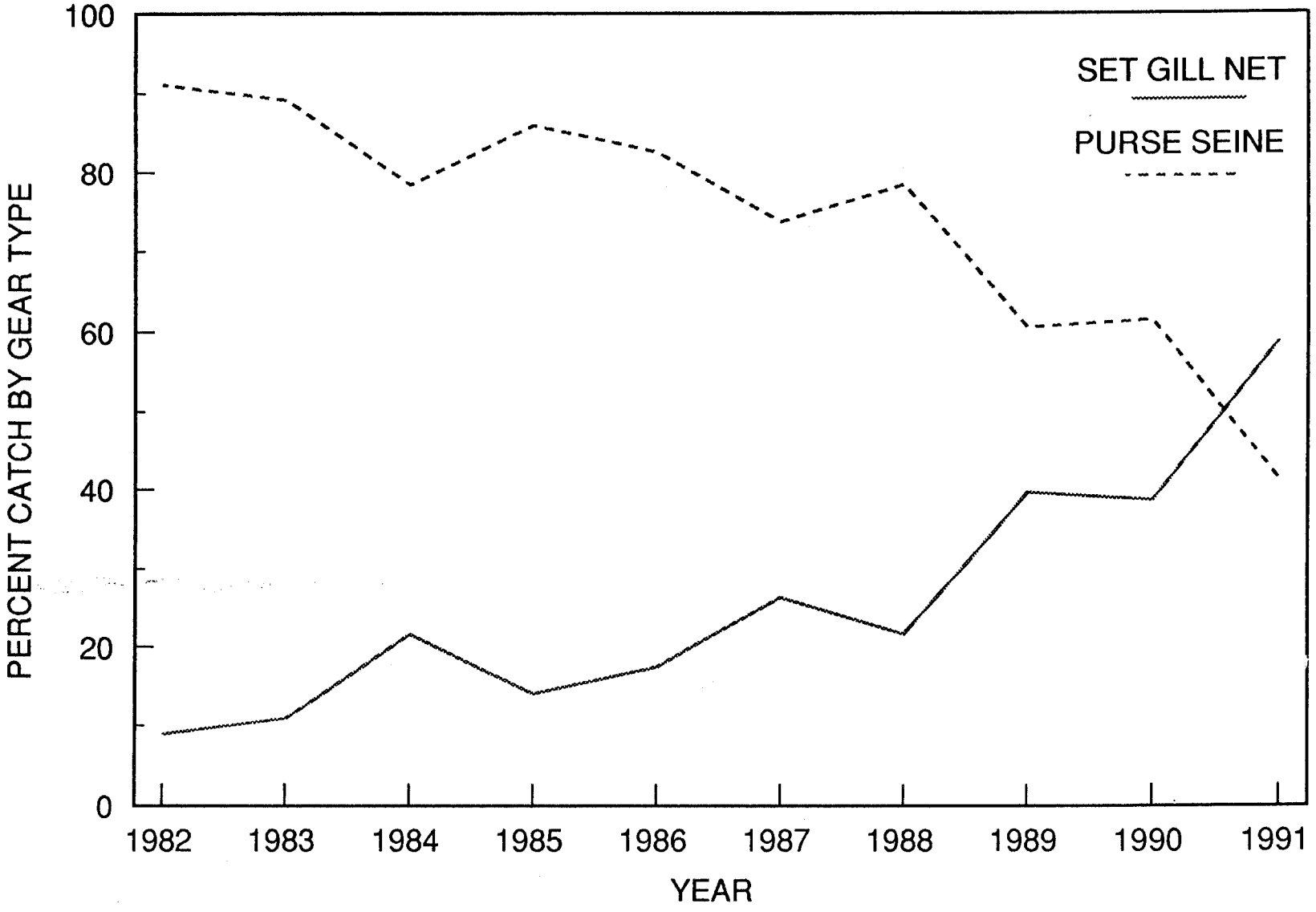


Figure 11. Shumagin Islands Section harvest of sockeye salmon by gear type, 1982-91.

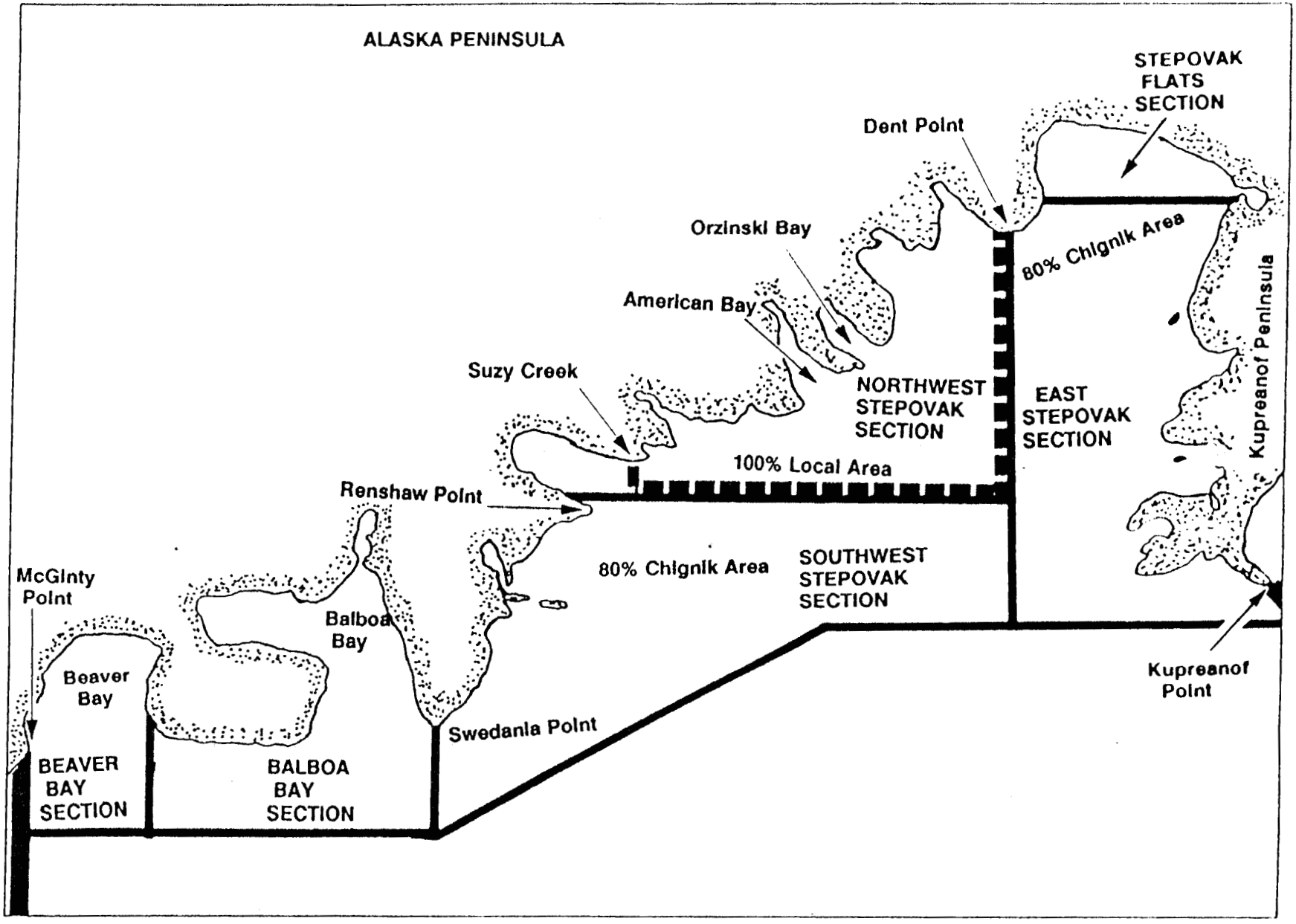


Figure 12. Map of the Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections shown.

Table 5. Southeastern District Mainland fishery post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	32	9,434	11,340	22,520	220	43,546
1973	9	17,104	10,488	9,844	345	37,790
1974	15	39,287	47,877	15,286	187	102,652
1975	0	3,156	3,020	770	63	7,009
1976	2	7,897	275,159	24,689	198	307,945
1977	28	39,002	170,648	21,626	2,001	233,305
1978	20	12,130	692,442	67,344	6,773	778,709
1979	104	101,957	1,169,661	80,587	24,758	1,377,067
1980	80	91,294	403,600	200,263	20,504	715,741
1981	268	145,291	910,743	410,407	13,408	1,480,117
1982	383	64,758	907,122	380,767	16,364	1,369,394
1983	1,376	324,443	178,700	246,358	18,397	769,274
1984	638	222,079	1,297,925	253,553	29,170	1,803,365
1985	77	79,657	1,017,490	165,206	15,545	1,277,975
1986	278	181,344	490,241	165,393	4,943	842,199
1987	288	106,903	378,911	241,392	24,100	751,594
1988	349	158,374	1,180,811	258,832	40,621	1,638,987
1989	1,191	277,091	3,005,086	132,027	74,321	3,489,716
1990	822	277,460	249,809	156,045	55,565	739,701
1991	1,306	187,272	2,137,673	198,804	57,162	2,582,217
10 yr avg	671	187,938	1,084,377	219,838	33,619	1,526,442
20 yr avg	363	117,297	726,937	152,586	20,232	1,017,415
odd yr avg			898,242			
even yr avg			555,633			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

Table 6. South Central District post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	8	155	7,663	30,036	2	37,864
1973	0	90	6,473	26,151	103	32,817
1974	1	1,343	11,293	2,190	0	14,827
1975	0	53	27,032	28,649	3	55,737
1976	3	4,419	1,457,025	73,604	12	1,535,063
1977	7	9,022	992,852	87,468	15	1,089,364
1978	11	2,604	2,261,341	107,569	1,717	2,373,242
1979	6	4,362	1,596,779	101,655	4,213	1,707,015
1980	11	2,849	490,081	185,177	1,374	679,492
1981	15	11,158	1,921,062	215,547	1,714	2,149,496
1982	26	3,057	1,560,106	238,407	3,486	1,805,082
1983	189	9,268	1,165,899	127,413	3,365	1,306,134
1984	309	22,687	3,444,274	298,709	3,471	3,769,450
1985	46	11,701	678,418	165,893	987	857,045
1986	33	49,266	1,078,410	254,835	1,164	1,383,708
1987	104	39,209	222,080	198,350	1,237	460,980
1988	282	48,968	123,343	155,378	3,696	331,667
1989	95	58,206	550,192	49,861	3,642	661,996
1990	126	62,040	382,065	60,370	3,767	508,368
1991	202	44,277	3,270,646	156,552	9,259	3,480,936
10 yr avg	141	34,868	1,247,543	170,577	3,407	1,456,537
20 yr avg	74	19,237	1,062,352	128,191	2,161	1,212,014
odd yr avg			1,043,143			
even yr avg			1,081,560			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

Table 7. Southwestern District post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	2	3,374	6,806	12,377	58	22,617
1973	1	1,360	1,507	1,943	31	4,842
1974	6	11,957	4,426	2,321	1,095	19,805
1975	0	240	25,343	509	0	26,092
1976	0	1,374	306,421	12,398	0	320,193
1977	0	12,548	279,745	17,630	18	309,941
1978	0	4,020	1,332,325	83,213	11,848	1,431,406
1979	0	11,091	1,562,361	97,384	13,966	1,684,802
1980	18	37,483	3,815,588	169,141	17,949	4,040,179
1981	6	20,442	376,948	217,615	19,197	634,208
1982	162	35,730	904,919	253,519	27,161	1,221,491
1983	347	42,663	513,215	139,111	3,256	698,592
1984	308	113,177	4,022,127	383,518	51,646	4,570,776
1985	90	95,459	997,847	375,413	40,160	1,508,969
1986	120	111,763	671,600	414,277	28,027	1,225,787
1987	130	59,089	46,398	170,711	41,218	317,546
1988	310	67,382	2,103,097	474,764	84,991	2,730,544
1989	429	141,614	1,477,724	67,046	102,890	1,789,703
1990	242	226,480	591,592	102,462	52,020	972,796
1991	335	94,988	2,439,596	228,703	100,249	2,863,871
10 yr avg	247	98,835	1,376,812	260,952	53,162	1,790,008
20 yr avg	125	54,612	1,073,979	161,203	29,789	1,319,708
odd yr avg			772,068			
even yr avg			1,375,890			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

Table 8. Unimak District post June commercial salmon catch by species, 1972-91.

Year	Number of Salmon					
	Chinook	Sockeye	Pink	Chum	Coho	Total
1972	3	5,315	110	24,897	23	30,348
1973	0	480	21	778	0	1,279
1974	0	0	0	0	0	0
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	0	0	0	0	0	0
1979	0	0	0	0	0	0
1980	0	0	0	0	0	0
1981	76	8,912	7,019	15,058	623	31,688
1982	1	666	1,162	1,317	514	3,660
1983	4,351	36,666	13,100	182,034	9,736	245,887
1984	313	16,826	112,833	100,954	14,854	245,780
1985	0	173	2,503	419	161	3,256
1986	6	3,186	1,267	2,420	200	7,079
1987	25	8,955	1,740	8,789	249	19,758
1988	115	25,308	61,017	77,514	24,852	188,806
1989	63	15,999	33,425	50,616	11,784	111,887
1990	58	50,032	20,224	52,967	12,029	135,310
1991	31	5,060	7,083	8,525	10,820	31,519
10 yr avg	496	16,287	25,435	48,556	8,520	99,294
20 yr avg	252	8,879	13,075	26,314	4,292	52,813
odd yr avg			6,489			
even yr avg			19,661			

Note: The 10 year average is from 1982 - 1991, the 20 year average is from 1972 - 1991, the odd year average includes odd number years from 1972 - 1991 and the even year average includes even number years from 1972 - 1991.

In 1991, a total of 320,336 coho salmon were harvested in post June South Peninsula fisheries (Table 1). The catch was 11% above the 1982-91 average of 289,547 salmon and 5% above the 1990 catch of 305,509 salmon. The Southeastern and Southwestern District accounted for 94% of the post June coho salmon harvest (Tables 3, 7). The Shumagin Islands Section of the Southeastern District accounted for 46% and the Ikatan Bay Section of the Southwestern District accounted for 18% of the harvest (Tables 9, 10). In 1991, the peak catch for the South Peninsula occurred during July 19-25 (113,106 salmon). During the past 10 years, the peak catch ranged between mid July and the first week of August, and averaged the last week of July.

Pink Salmon

The major species produced in South Peninsula streams are pink salmon. Runs fluctuate over time due to the magnitude of parent year escapements and environmental conditions. The 1972-91, post June pink salmon commercial catch has ranged from 35,783 in 1973 to 10,663,896 in 1984 (Table 1). Generally, most streams produce large runs on even and odd year cycles, except for streams between Cold Bay and Unimak Bight, which are basically even year producers. Several streams in the Shumagin Islands also seem to be even year cyclic. Pink salmon runs usually arrive in strength about July 20 and peak about August 1. Although, late runs such as those in the Kupreanof Peninsula, in portions of the Southwestern District, and some of the runs in the Shumagin Islands peak in early to mid August. After mid August, pink salmon quality in terminal areas is usually poor due to water marking.

In 1991, a total of 9,995,836 pink salmon were harvested in the South Peninsula post June fisheries (Table 1). The catch was the second largest since 1906, being exceeded only by the 1984 harvest. The catch was more than 2.5 times the 1972-91 odd year average of 3,788,366 salmon and more than four times the 1990 catch of 2,346,043 salmon. The Southeastern District accounted for 43% of the harvest with the catch split almost equally between the Shumagin Islands Section and the Southeastern District Mainland area (Tables 2, 3, and 5). The South Central District accounted for 33% and the Southwestern District accounted for 24% of the post June pink salmon harvest (Tables 6, 7). Peak catch occurred from July 26 through August 1 for the entire South Peninsula. Weekly catches exceeding one million salmon occurred from July 26 through August 15, and a catch of about 621,000 occurred from July 19-25. During the past 10 years the peak catch ranged between late July to mid August, and averaged the first week of August.

Chum Salmon

Chum salmon are the second most important locally produced salmon species. During 1972-91, post June commercial catches have ranged from 29,928 salmon in 1975 to 1,394,332 in 1986 (Table 1). Chum salmon runs are more stable than pink salmon runs primarily because the return is comprised of more than one age class and chum salmon tend to select spawning locations which are less susceptible to scouring and freezing. Chum salmon runs begin earlier and last longer than those of pink salmon and there is a large variation in timing between different chum stocks. After July 28, chum salmon quality in several terminal areas is usually poor due to water marking.

Table 9. South Unimak fishery (Unimak District and the Ikatan Bay Section of the Southwestern Disstrict) post June commercial salmon catch by species and percent of coho and sockeye salmon in the harvest, 1972-91.

Year	Number of Salmon						Percent of coho & sockeye in total catch
	Chinook	Sockeye	Pink	Chum	Coho	Total	
1972	5	8,666	156	32,146	74	41,047	21.3
1973	0	1,659	41	1,102	21	2,823	59.5
1974	6	11,957	1,451	2,097	1,095	16,606	78.6
1975	0	0	0	0	0	0	0.0
1976	0	0	0	0	0	0	0.0
1977	0	0	0	0	0	0	0.0
1978	0	22	46,919	1,916	2	48,859	0.0
1979	0	0	0	0	0	0	0.0
1980	0	497	48,637	236	57	49,427	1.1
1981	76	9,232	7,065	15,856	653	32,882	30.1
1982	142	17,089	44,583	20,144	25,546	107,504	39.7
1983	4,675	64,962	17,442	203,858	12,050	302,987	25.4
1984	556	66,965	327,290	154,533	63,958	613,302	21.3
1985	55	36,002	37,219	29,084	28,164	130,524	49.2
1986	115	63,347	60,969	40,303	25,489	190,223	46.7
1987	134	54,370	6,414	53,621	33,317	147,856	59.3
1988	293	71,042	245,691	133,659	84,643	535,328	29.1
1989	443	121,229	108,334	96,469	107,636	434,111	52.7
1990	202	164,176	62,718	88,330	46,514	361,940	58.2
1991	150	32,838	37,543	37,309	66,965	174,805	57.1
10 yr avg	677	69,202	94,820	85,731	49,428	299,858	39.6
20 yr avg	343	36,203	52,624	45,533	24,809	159,511	

Note: The 10 year average is from 1982 - 1991 and the 20 year average is from 1972 - 1991.

Table 10. Percent of the total, coho, and sockeye salmon post June commercial salmon catch by gear type for the South Unimak fishery (Unimak District and the Ikatan Bay Section of the Southwestern District), 1972-91.

Year	All Species			Coho			Sockeye		
	Seine	Drift	Set	Seine	Drift	Set	Seine	Drift	Set
1972	1.2	98.5	0.3	18.9	73.0	8.1	0.5	99.2	0.3
1973	0.0	98.5	1.5	0.0	100.0	0.0	0.0	98.4	1.6
1974	29.6	70.4	0.0	0.5	99.5	0.0	40.3	59.7	0.0
1975	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1976	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1977	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1978	100.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0
1979	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1980	98.3	0.8	0.8	78.9	0.0	21.1	12.7	80.1	7.2
1981	94.3	4.6	1.1	95.4	0.0	4.6	83.5	14.9	1.5
1982	27.3	67.6	5.1	20.6	75.2	4.2	13.5	75.7	10.8
1983	80.8	15.9	3.3	66.5	30.3	3.3	58.3	29.2	12.5
1984	64.7	27.2	8.1	26.0	59.1	14.9	39.4	39.9	20.7
1985	16.4	57.8	25.8	4.9	63.7	31.5	12.7	49.6	37.6
1986	28.4	52.2	19.4	4.0	74.2	21.8	26.0	47.8	26.3
1987	10.5	78.5	11.0	0.4	91.4	8.2	9.8	72.4	17.8
1988	30.1	62.3	7.7	0.7	89.1	10.2	23.0	62.9	14.1
1989	22.8	70.4	6.9	7.9	82.1	10.0	18.5	71.2	10.3
1990	23.7	70.3	6.0	0.4	91.7	7.9	10.7	81.0	8.4
1991	12.7	71.6	15.7	7.1	76.5	16.4	10.5	66.1	23.3
10 yr avg	31.7	57.4	10.9	13.8	73.3	12.8	22.2	59.6	18.2

Note: The 10 year average is from 1982 - 1991.

In 1991, a total of 804,251 chum salmon were harvested in the South Peninsula post June fisheries (Table 1). The catch was 20% below the 1982-91 average of 1,005,607 salmon and 12% above the 1990 catch of 715,940 salmon. The Southeastern District accounted for 51% of the harvest, with the catch almost equally split between the Shumagin Islands Section and the Southeastern District Mainland area (Tables 2, 3, and 5). The South Central District accounted for 19% and the Southwestern District accounted for 28% of the post June chum salmon harvest. Only 8,525 chum salmon were harvested in the Unimak District (Tables 6-8). In 1991, the peak catch occurred during August 9-15 in the South Peninsula, but catches exceeding 100,000 chum salmon occurred from August 2-22. During the past 10 years the peak catch ranged from mid July to mid August and averaged the last week of July.

SOUTHEASTERN DISTRICT MAINLAND FISHERY

The Southeastern District Mainland fishery includes Beaver Bay, Balboa Bay, Southwest Stepovak, Northwest Stepovak, Stepovak Flats, and East Stepovak Sections (Figure 12). Through July 25, the Southeastern District Salmon Management Plan (5 AAC 09.360; ADF&G 1990) is in effect. The management plan allocates 6.0% of the total Chignik destined sockeye catch to fishermen in the Southeastern District Mainland fishery. There is also a local sockeye salmon run (Orzenoi or Orzinski Lake) in the Northwest Stepovak Section and early July chum salmon in the Stepovak Flats Section. The Northwest Stepovak and Stepovak Flats Sections are managed on a local stock basis throughout the season. All sockeye salmon caught in the Northwest Stepovak Section are attributed to the local Orzinski run, while 80% of the sockeye caught in the Stepovak Flats Section are counted as Chignik destined salmon (the same rate as the remainder of the Southeastern District Mainland area). During late July through mid August, pink and chum salmon runs are peaking. As with most of the South Peninsula, the Southeastern District Mainland fishery is usually closed during mid and late August to achieve late run escapements and is re-opened in September to harvest coho salmon. Migrating sockeye and coho salmon are in the area during the entire salmon season.

In 1991, from July 1 through July 25, a total of 140,270 salmon comprised of 384 chinook, 104,814 sockeye, 1,385 coho, 24,752 pink, and 8,935 chum salmon were harvested in the Southeastern District Mainland fishery. After July 25, when the management plan is no longer in effect, a total of 2,573,603 salmon comprised of 449 chinook, 106,928 sockeye, 48,487 coho, 2,094,428 pink, and 183,041 chum salmon were harvested.

SOUTH PENINSULA IMMATURE SALMON CONCERNS

Historically, the presence of immature salmon in South Peninsula waters has caused the curtailment of purse seine fishing effort during late June and/or July in 1963, 1968, 1969, 1974, 1979, and 1989 through 1991. The problem associated with the immature salmon is restricted to the purse seine fleet. The immature

salmon are gilled in the seine web, resulting in an assumed 100% mortality factor. Historically, the immature salmon cause the greatest problem in the Shumagin Islands Section, where some 60-65 purse seine permit holders currently fish. Also effected by immature salmon are the Unimak District and occasionally portions of the Southwestern District. Currently, about 7-9 purse seine permit holders fish the Unimak District in post June fisheries. All of the purse seine fishermen must either remain on the beach or fish areas open to purse seine gear. These open areas are either not as productive as the Shumagin Islands Section and Unimak District or the waiting period at favored sites in open areas is extended by their presence. The immature salmon usually migrate out of the Shumagin Islands Section by late July. In 1991, the presence of immature salmon was wide spread, with reports of immature salmon from the east side of Kodiak to Unimak Island.

The recent increase in the amount of purse seine gear and a corresponding increase in the sockeye and coho salmon harvests in the Southwestern and South Central Districts can be attributed to the closure of the Shumagin Islands Section and the Unimak District during July because of the presence of immature salmon. In 1991, the closure of the Shumagin Islands Section, the Unimak District, and portions of the Southwestern District resulted in a lower catch of sockeye and coho salmon in those locations by purse seine fishermen and an increase in the harvest of those species by set gill net fishermen, especially in the Shumagin Islands Section.

LITERATURE CITED

ADF&G (Alaska Department of Fish and Game). 1990. 1990-1991 Bristol Bay and Westward Alaska commercial fishing regulations salmon and miscellaneous finfish, 1990 edition. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

McCullough, J.N. 1991. Southeastern District Mainland (Alaska Peninsula Area management plan, 1991. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K91-5, Kodiak.

Shaul, A.R., and two co-authors. 1991a. Alaska Peninsula-Aleutian Islands general salmon management plan, 1991. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K91-10, Kodiak.

Shaul, A.R., and four co-authors. 1991b. Alaska Peninsula and Aleutian Islands Areas annual salmon and herring management report, 1990. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K91-12, Kodiak.